

**REMARKS**

Claims 1, 3 and 4 are pending in this Application. Claim 1 has been amended. Care has been exercised to avoid the introduction of new matter. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure. Applicants submit that the present Amendment does not generate any new matter issue.

**Claims 1, 3 and 4 were rejected under 35 U.S.C. § 103 for obviousness predicated upon Shiomi in view of Brooks et al. and Nasser-Faili et al.**

In the statement of the rejection the Examiner recognized certain shortcomings in the teachings of Shiomi, notably the failure to disclose the use of at least  $0.45\text{W/cm}^2$  power etching or the addition of nitrogen to the etchant gas mixture. The Examiner, however, concluded that one having ordinary skill in the art would have been motivated to modify Shiomi's method by employing the power required by the method set forth in independent claim 1 and by adding nitrogen, in view of Brooks et al. and Nasser-Faili et al. This rejection is traversed.

There are fundamental differences between the claimed invention and the applied prior art that undermine the obviousness conclusion under 35 U.S.C § 103, particularly the asserted motivation. In order to establish a requisite realistic motivation, the Examiner must make clear and particular factual findings as to a specific understanding or specific technological principle and then, based upon such facts, explain why one having ordinary skill in the art would have been realistically motivated to modify particular prior art, in this case Shiomi's particular method, to arrive at the claimed invention. *In re Lee*, 237 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002); *Ecolochem Inc. v. Southern California Edison, Co.*, 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Kotzab*, 217 F.3d 1365, 55 USPQ 1313 (Fed. Cir. 2000); *In re*

*Dembiczak*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999); *In re Rouffet*, 149 F.3d 1350, 47 USPQ2d 1453 (Fed. Cir. 1998). Applicants would stress that the requisite realistic motivation must be undertaken with a reasonable expectation of success. *Velander v. Garner*, 348 F.3d 1359, 68 USPQ2d 1769 (Fed. Cir. 2003); *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Applicants would further stress that one having ordinary skill in the art is not prone to innovation. Rather, in determining the requisite realistic motivation, one having ordinary skill in the art is presumed to **follow conventional wisdom**. *Ecolochem Inc. v. Southern California Edison, Co.*, *supra*; *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 227 USPQ 293 (Fed. Cir. 1985).

With the above legal tenets in mind, Applicants submit that the requisite realistic motivation has not been established. Specifically, the Examiner asserted that Brooks et al. teach etching diamond with a mixture of oxygen and nitrogen, but no fluorine etchant. The Examiner runs to Nasser-Faili, et al. asserting the disclosure of etching diamond with oxygen and NF<sub>3</sub>. The Examiner then somehow entwines the oxygen and nitrogen from one situation (Brooks et al.) with oxygen and NF<sub>3</sub> from a different situation (Nasser-Faili, et al.), in an attempt to modify yet another situation (Shiomi) in arrive at the claimed method which employs oxygen, fluorine and nitrogen. However, to merely select components of different etching techniques and then arrive at a group of components for a third etching technique, as the Examiner has done, loses sight of the claim requirement to form the diamond product with a **projection** having a **side face with an angle of inclination of at least 78 degrees**.

Brooks et al. disclose that diamond may be etched by a mixture of nitrogen and oxygen. However, to merely use oxygen and nitrogen would **not** form a diamond product having a projection with a side face with an angle of inclination of at least 78 degrees even using nitrogen

and oxygen. Nitrogen is effective only in a mixture that includes CF<sub>4</sub>. Thus, the claimed invention clearly distinguishes over Brooks et al.

Nasser-Faili et al. disclose **polishing** a diamond. In other words, Nasser-Faili et al. proceed in a direction completely opposite the claimed invention by disclosing a method for **erasing a projection** on diamond and making the diamond surface flat. It is inconceivable that one having ordinary skill in the art would have realistically looked to Nasser-Faili et al. for a method of forming a **projection** on the diamond when Nasser-Faili et al. in fact disclose **erasing a projection** on diamond. Clearly, claim 1 is directed to a method of forming a projection and a recess having a substantially vertical side face.

Based upon the foregoing Applicants submit that one having ordinary skill in the art would **not** have been realistically motivated to combine the teachings of Nasser-Faili et al. with Brooks et al. and then to impose those teachings in Shiomi's method motivated by any reasonable expectation of success. Accordingly, a *prima facie* basis to deny patentability to the claimed invention has not been established.

### **Evidence of Nonobviousness**

Applicants hereby rely upon Nasser-Faili et al. as evidence of **nonobviousness**. The Examiner relied upon Nasser-Faili et al. to support the assert motivation to employ a particular power and oxygen, fluorine and nitrogen. Nasser-Faili et al. polish a diamond and therefore seek to **avoid** any projections. However, the present method is specifically directed to forming a particular projection. This **clear teaching away** from the claimed invention by Nasser-Faili et al. constitutes evidence of **nonobviousness**. *Ecolochem Inc. v. Southern California Edison, Co., supra; In re Bell, 991 F.2d 781, 26 USPQ2d 1529 (Fed. Cir. 1993); Specialty Composites v.*

*Cabot Corp.*, 845 F.2d 981, 6 USPQ2d 1601 (Fed. Cir. 1988); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986); *In re Marshall*, 578 F.2d 301, 198 USPQ 344 (CCPA 1978).

### Conclusion

Based upon the foregoing it should be apparent that a *prima facie* basis to deny patentability to the claimed invention has not been established. Moreover, upon giving due consideration to the evidence of **nonobviousness** stemming from the Examiner's teaching reference actually **teaching away** from the claimed invention (Nasser-Faili et al.), the conclusion appears inescapable that one having ordinary skill in the art would **not**, repeat **not**, have found the claimed subject matter **as a whole** obvious within the meaning 35 U.S.C. § 103. *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984).

Applicants, therefore, submit that the imposed rejection of claims 1, 3 and 4 under 35 U.S.C. § 103 for obviousness predicted upon Shiomi in view of Brooks et al. and Nasser-Faili, et al. is not factually or legally viable and, hence, solicit withdrawal thereof.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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